Test case 3a.2: Static drift

Conditions

- Towing condition in still water
- Pitch and heave free; roll fixed
- Without rudders
- With bilge keels

F_n [-]	R_n [-]	U_C [m/s]	β [deg]
0.280	4.643×10^6	1.531	-10.0

Items and Remarks

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Integral variables: Non-dimensionalized coefficients of X-force (X') Y-force (Y') Yaw moment (N') and Uncertainty analysis (U_{SN} , U_V , E) Ship motion data: Heave [m] Pitch [deg]	Experimental results are available

- Coordinate system for comparision is fixed at midship on the undisturbed waterplane.
- $F_n = \dfrac{U_C}{\sqrt{gL_{PP}}}$, $R_n = \dfrac{U_C \cdot L_{PP}}{\nu}$

  where, U_C is towing carriage speed, g is the gravitational acceleration and ν is the kinematic viscosity of water.
- All quantities are non-dimensionalized with water density (ρ), ship speed ($U = \sqrt{u^2 + v^2}$), lateral underwater area ($A_0 = L_{pp}\, T_m$), and the length between perpendiculars (L_{pp}).

$$X' = \frac{F_{X_{Hydro}}}{0.5\rho U^2 A_0}\ ,\ Y' = \frac{F_{Y_{Hydro}}}{0.5\rho U^2 A_0},\ N' = \frac{M_{Z_{Hydro}}}{0.5\rho U^2 A_0 L_{pp}}$$